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Research Note
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Oracle's Healthcare Transaction Base Makes Strides

This developing product is well-suited for large-scale development projects involving complex healthcare data. The toolkit has great potential, but users should exercise reasonable due diligence.

Core Topic
Healthcare: Healthcare Technologies, Infrastructure and Standards

Key Issue
How will developments in underlying information technologies, architecture, standards and regulations affect healthcare organizations' technology strategies?

In "Vendor Rating: Oracle Healthcare Application Shows Promise," Gartner reviewed Oracle's healthcare-specific enterprise resource planning application products and its then-new Healthcare Transaction Base (HTB) product. Here, we update our appraisal of HTB based on progress during the past 18 months.

Description

HTB is not an end-user application, but rather an extensive toolkit for building such applications. It is based on the Oracle database management system and development tools, and includes a database design based on the Health Level Seven (HL7) Reference Information Model (RIM) and a Java application programming interface (API) that includes services for:

- Building, storing and retrieving objects using the class structure of the RIM
- Person services, such as creating, cross-linking and updating information about patients, members, providers and other people
- Terminology management (using, maintaining and manipulating controlled medical vocabularies)
- Business process/workflow
- HL7 v3 messaging
- Database transaction management
- Security and auditing

The API in the current release (v.4.3) includes services to support applications for patient registration, results review, staff management and medication management, and a repository for healthcare claims. The next release (v.5, expected in mid-2005)

includes services to support full order management and clinical documentation.

Oracle does not offer an encapsulation of the API using Web services. This is counter to mainstream approaches for integration (see "Predicts 2005: The Impact of Web Services Still Grows"). Two contractors, Integic and Computer Sciences Corp. Scandihealth, have developed Web services encapsulations for their clients.

The messaging service is designed to work with Oracle or third-party integration brokers. Oracle has projects in planning or implementation phases using HTB with Oracle's Healthcare Integration Hub (iHub), Orion Rhapsody, Quovadx Integration Services (with Lifeline Networks in the Netherlands), SeeBeyond eGate and Sybase e-Biz Impact.

The HTB person services do not comprise a full enterprise master person index system; Oracle has projects in planning or implementation phases to integrate HTB with EMerge, a product offered by LifeLine Networks, and the Clinical Information System of Symphonie On Line, which is widely deployed in France. Agfa recently acquired Symphonie On Line.

HTB can be used to build business intelligence and data-warehousing applications. HTB v.5 will add functionality to "jump start" such applications.

HL7 v2 Messaging

HL7 v2 messaging is widely implemented in some countries, including the United States, the Netherlands and Australia. V3 messaging, a newer standard, is not yet widely implemented anywhere, but it is the standard of choice for countries with new initiatives that are not burdened by legacy V2 interfaces. V3 messages are tightly coupled to the RIM and use Extensible Markup Language (XML).

HTB sends and receives v3 messages natively. Where countries or care delivery organizations have implemented idiosyncratic variations of the v2 standard, as most have, they must use an integration broker to map the v2 message to and from Oracle's standard v3 messages. Oracle Consulting has built several maps from v2.4 to v3 messages. These can be leveraged in projects that also include iHub and Oracle Consulting services. The client project must still map idiosyncratic v2 messages to Oracle's v2 messages, but this is an easier task than mapping to v3.

Product Use

The HTB suite of capabilities can reduce the time needed to build and deliver a healthcare application from scratch — the more-

complex the clinical data the more benefit is available from the product. The agency building such an application must still do a functional design, build screens and business logic modules, and perform other engineering tasks, but the time-consuming, upfront effort to create a database design and supporting API is replaced by the somewhat easier job of learning to use HTB. In Gartner's experience, eliminating the steps to create a database design and API can eliminate six to 18 months of calendar time and three to 12 person years' work from a complex project.

The benefits of using HTB are multiplied when many different applications are built on this platform. The use of a common information model and services ensures close coupling of the applications to achieve a high degree of semantic interoperability.

Product Experience

The process of getting experience with a toolkit product is prolonged because each development cycle by Oracle must be followed by development cycles of its customers to get feedback. Oracle has described ongoing projects with 15 clients in the United States, Europe and Asia/Pacific. The clients include healthcare payer organizations, providers and governmental agencies. The project progress ranges from having recently gone live to only recently signed. They include large-scale projects by agencies of national governments and regional implementations.

When most of these projects have successfully moved into production, Gartner would position HTB as a "stable" product using its Product Maturity Model (see "A Healthcare Application 'New Product' Risk Model"). For now, however, we place it between "beta" and "early adopter."

Products that implement a complex object model over a complex relational schema are likely to have initial performance "hot spots" that need tuning. This is consistent with an important principle of software engineering, "develop, then tune." Oracle has an established set of metrics and a scheme for performance measurements that have demonstrated substantial progress in tuning successive releases of HTB to get fairly good performance in the lab. The real proof of performance, however, will come as the ongoing projects go into production.

HTB as a Platform for Independent Software Vendors

HTB has the potential to substantially reduce the time-to-market for new products that require scalable implementations using highly clinical data. As such, it may be attractive to new independent software vendors (ISVs) or established ISVs with new product initiatives that require clinical data repositories. Hypothetically, products developed by separate ISVs on the

same platform would stand a strong chance of excellent semantic interoperability. Oracle envisions ISVs rallying around HTB, making it a basis for a higher level of interoperability than can be achieved through messaging.

However, many vendors of enterprise-level applications are reluctant to become beholden to any single source, and a product built on HTB would be completely "locked in." Although HTB has a few vendor clients, Gartner has yet not seen evidence of a widespread community.

Product Strategy:

Provide a toolkit to shorten the development cycle of healthcare applications and ensure a high degree of semantic interoperability among independently developed applications.

Strengths:

- Visionary concept
- Extensive product investment
- Comprehensive information model based on HL7 RIM
- Fairly complete and growing class library to shorten application development cycles
- Oracle's worldwide marketing and consulting presence

Challenges:

- Double development cycle (Oracle and a client-developer) necessary to prove the value of a product or a release
- Explaining the concept through an applications-oriented sales force
- Limited worldwide use of HL7 v3 messaging
- No Oracle support for Web Services
- ISV business concerns about being beholden to a tool vendor
- Rich set of capabilities creates a long learning curve for users

Consider This Product When:

- Initiating projects involving highly scalable databases of clinical and healthcare administrative data
- Creating an environment that will support a growing suite of separately developed, highly interoperable applications
- Time-to-implementation is critical or the development budget is a constraint

Oracle
Headquarters: Redwood Shores, California

Web Location: www.oracle.com

Healthcare Transaction Base v.4.3

HTB requires the Oracle eBusiness Suite and is available on all eBusiness Suite hardware, operating system and database platforms. HTB requires licensing and installation of Oracle database and application server. It is currently certified on the 9i database and application server versions up to 10g.

Acronym Key

API	application programming interface
HL7	Health Level Seven
HTB	Healthcare Transaction Base
ISV	independent software vendors
RIM	Reference Information Model
XML	Extensible Markup Language

Consider Alternatives When:

- There is a substantial investment in another viable clinical database design and class library
- There is a need to operate in an entirely .NET environment

Bottom Line: The value proposition of Oracle's Healthcare Transaction Base is genuine and unique. It has the potential to become a dominant player in the market for custom, highly scalable projects that require complex clinical data and a high degree of multiapplication semantic interoperability. Oracle is in the middle stages of perfecting the product and rolling it out. Agencies with appropriate needs should strongly consider HTB, but also exercise the reasonable prudence that would be required for any product early in its life cycle.